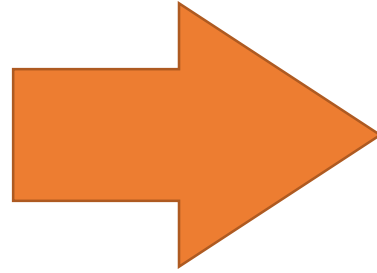
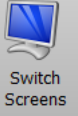
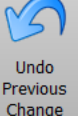
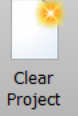


NUMALLIANCE BENDER CORRECTION STEPS





C:\Users\Public\Documents\VTube\Demo Files\VTube-LASER Demo 5.vtp

View Mode: SELECT, Projection: PARALLEL, Wire Frame: OFF, Auto Zoom: OFF

File Help

Displayed in UI: VTube-LASER Demo 5

Inspection Data

Best Fit Alignment 3

Recalculate Best Fit Alignment 3 - (Ctrl-R)

Data Overall Lengths General Setup Alignment Setup Env

Default Tolerance Ends 0.100 inches Set

Default Tolerance Tangents 0.015 inches Set

Trim A	+Tol A	-Tol A	Trim B	+Tol B	-Tol B	Angle A	Tol A	Ar
0.007	0.079	0.079	0.433	0.079	0.079	0.4466	0.3000	0.

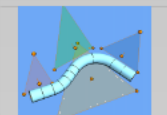
Tangents Intersection Aligned Model Out-of-round

Change Grid Setup

Expanded Window

	T1 dev	T1 tol	MP dev	MP tol	T2 dev	T2 tol
1	0.029	0.015	0.023	0.015	0.018	0.015
2	0.016	0.015	0.021	0.015	0.025	0.015
3	0.019	0.015	0.010	0.015	0.004	0.015
4	0.019	0.015	0.014	0.015	0.014	0.015
5	0.029	0.015	0.027	0.015	0.026	0.015
6	0.014	0.015	0.009	0.015	0.011	0.015

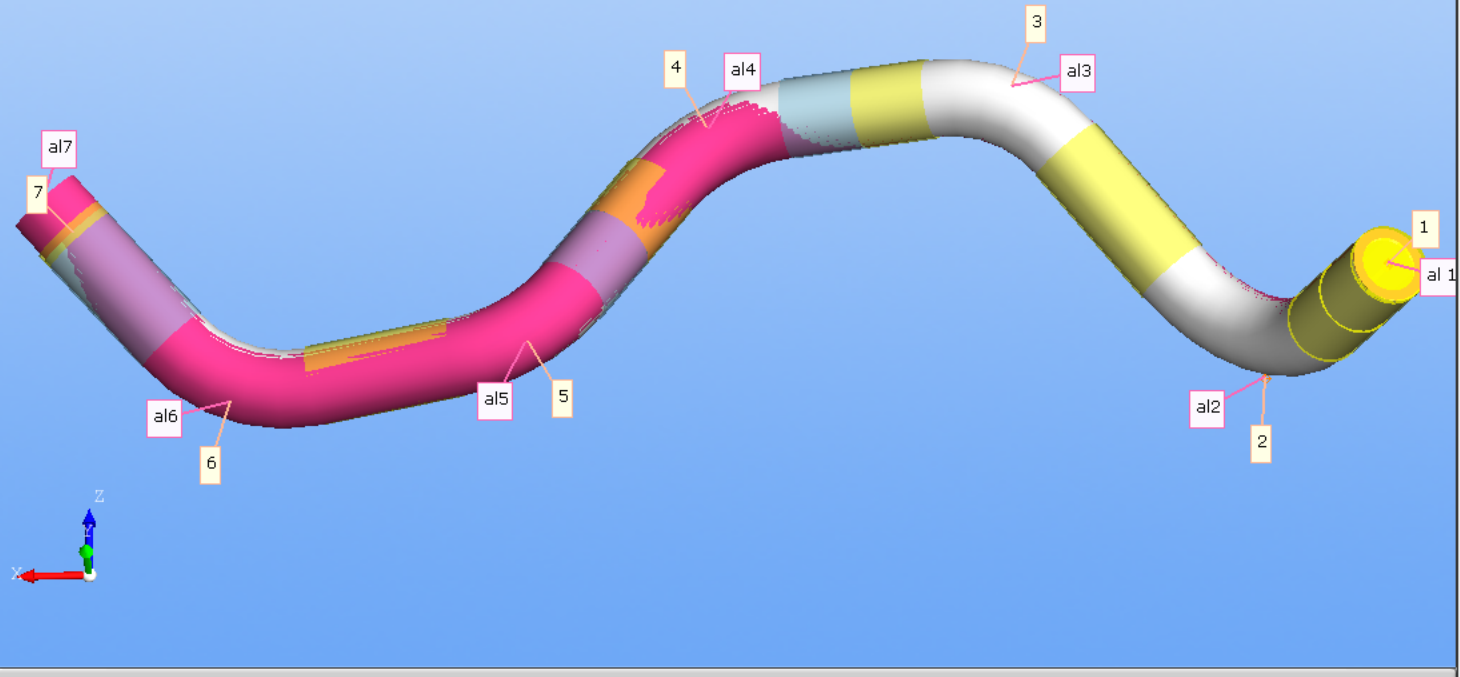
Active:1



DCP Auto = 0.375

Measuring Device: ROMER Arm

Click "Measured Tube"



Location: 24.493, 48.277, 0.000

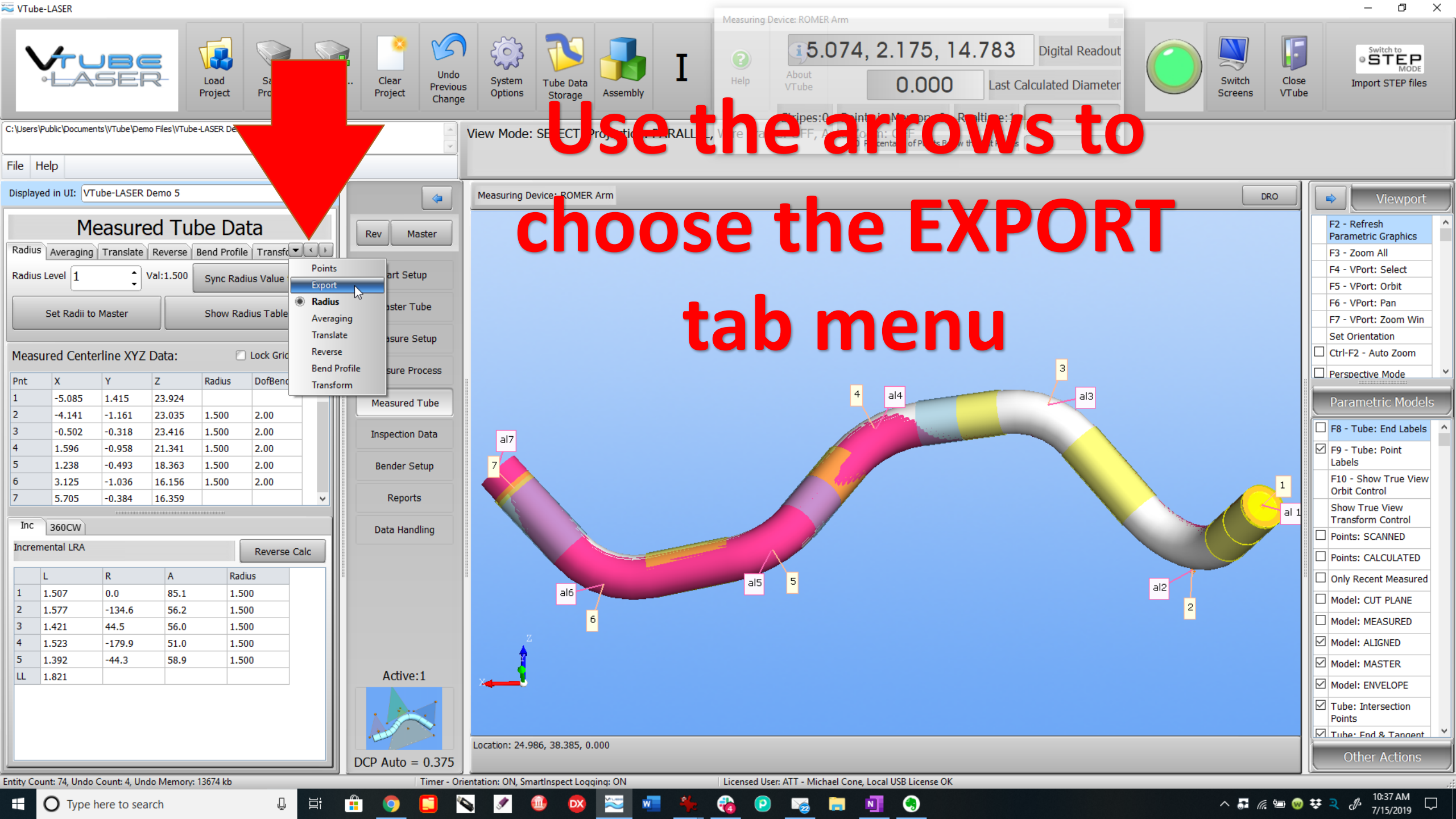
Viewport

- F2 - Refresh Parametric Graphics
- F3 - Zoom All
- F4 - VPort: Select
- F5 - VPort: Orbit
- F6 - VPort: Pan
- F7 - VPort: Zoom Win
- Set Orientation
- Ctrl-F2 - Auto Zoom
- Perspective Mode

Parametric Models

- F8 - Tube: End Labels
- F9 - Tube: Point Labels
- F10 - Show True View Orbit Control
- Show True View Transform Control
- Points: SCANNED
- Points: CALCULATED
- Only Recent Measured
- Model: CUT PLANE
- Model: MEASURED
- Model: ALIGNED
- Model: MASTER
- Model: ENVELOPE
- Tube: Intersection Points
- Tube: End & Tangent

Other Actions



Use the arrows to
choose the EXPORT
tab menu

Measured Tube Data

Radius Averaging Translate Reverse Bend Profile Transform

Radius Level 1 Val: 1.500 Sync Radius Value

Set Radii to Master Show Radius Table

Measured Centerline XYZ Data:

Pnt	X	Y	Z	Radius	DofBend
1	-5.085	1.415	23.924		
2	-4.141	-1.161	23.035	1.500	2.00
3	-0.502	-0.318	23.416	1.500	2.00
4	1.596	-0.958	21.341	1.500	2.00
5	1.238	-0.493	18.363	1.500	2.00
6	3.125	-1.036	16.156	1.500	2.00
7	5.705	-0.384	16.359		

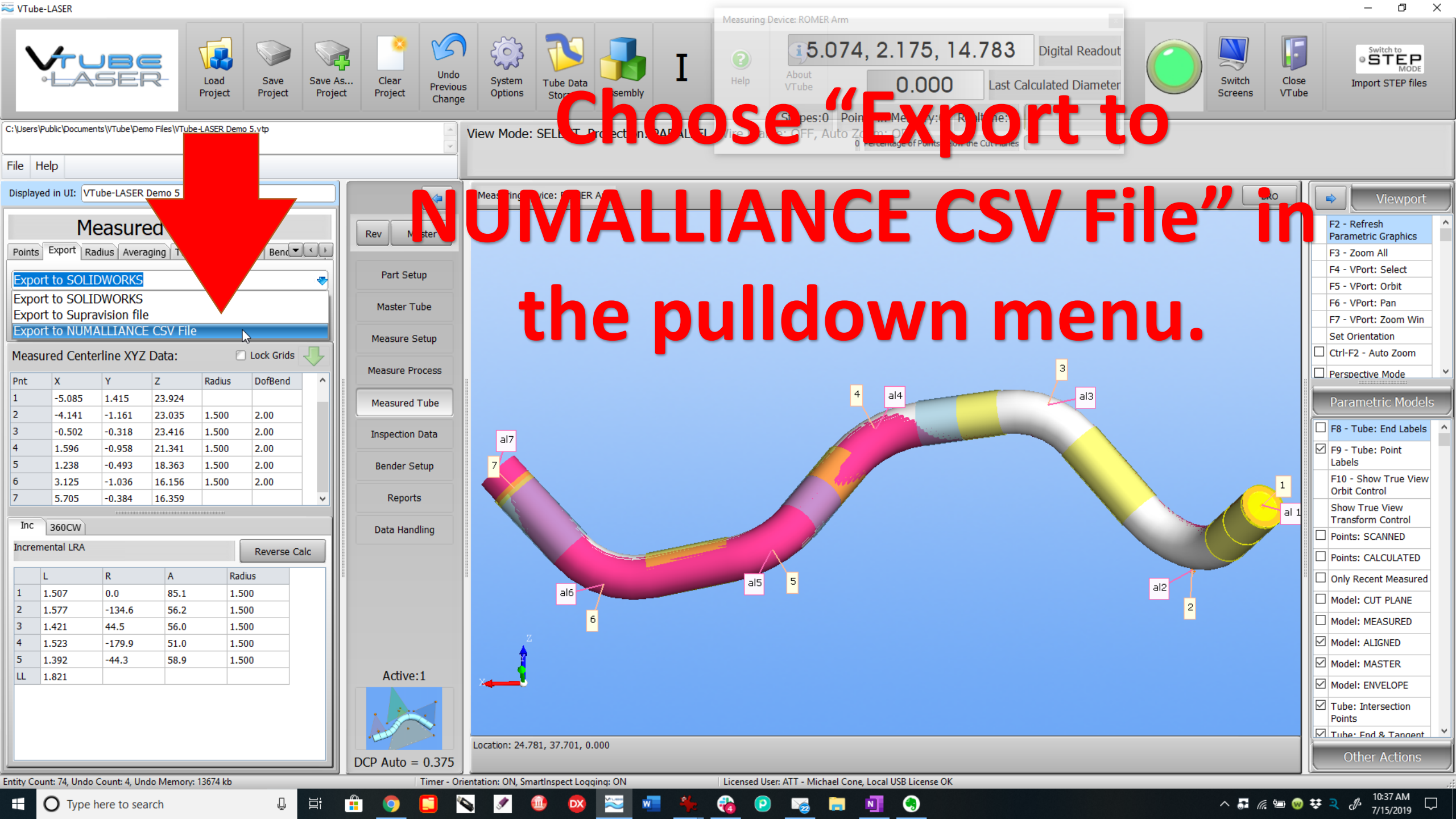
Inc 360CW

Incremental LRA Reverse Calc

	L	R	A	Radius
1	1.507	0.0	85.1	1.500
2	1.577	-134.6	56.2	1.500
3	1.421	44.5	56.0	1.500
4	1.523	-179.9	51.0	1.500
5	1.392	-44.3	58.9	1.500
LL	1.821			

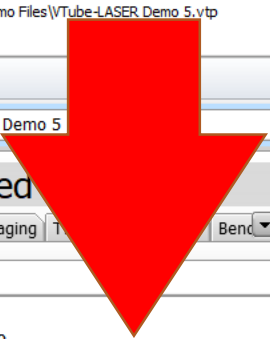
- Points
- Export
- Radius
- Averaging
- Translate
- Reverse
- Bend Profile
- Transform

- F2 - Refresh Parametric Graphics
- F3 - Zoom All
- F4 - VPort: Select
- F5 - VPort: Orbit
- F6 - VPort: Pan
- F7 - VPort: Zoom Win
- Set Orientation
- Ctrl-F2 - Auto Zoom
- Perspective Mode
- Parametric Models
- F8 - Tube: End Labels
- F9 - Tube: Point Labels
- F10 - Show True View Orbit Control
- Show True View Transform Control
- Points: SCANNED
- Points: CALCULATED
- Only Recent Measured
- Model: CUT PLANE
- Model: MEASURED
- Model: ALIGNED
- Model: MASTER
- Model: ENVELOPE
- Tube: Intersection Points
- Tube: End & Tangent
- Other Actions



Choose "Export to

NUMALLIANCE CSV File" in the pulldown menu.



- Export to SOLIDWORKS
- Export to SOLIDWORKS
- Export to Supravison file
- Export to NUMALLIANCE CSV File

Measured Centerline XYZ Data:

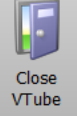
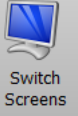
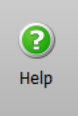
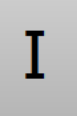
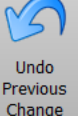
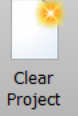
Pnt	X	Y	Z	Radius	DofBend
1	-5.085	1.415	23.924		
2	-4.141	-1.161	23.035	1.500	2.00
3	-0.502	-0.318	23.416	1.500	2.00
4	1.596	-0.958	21.341	1.500	2.00
5	1.238	-0.493	18.363	1.500	2.00
6	3.125	-1.036	16.156	1.500	2.00
7	5.705	-0.384	16.359		

Incremental LRA

	L	R	A	Radius
1	1.507	0.0	85.1	1.500
2	1.577	-134.6	56.2	1.500
3	1.421	44.5	56.0	1.500
4	1.523	-179.9	51.0	1.500
5	1.392	-44.3	58.9	1.500
LL	1.821			

- Rev
- Master
- Part Setup
- Master Tube
- Measure Setup
- Measure Process
- Measured Tube
- Inspection Data
- Bender Setup
- Reports
- Data Handling

- F2 - Refresh Parametric Graphics
- F3 - Zoom All
- F4 - VPort: Select
- F5 - VPort: Orbit
- F6 - VPort: Pan
- F7 - VPort: Zoom Win
- Set Orientation
- Ctrl-F2 - Auto Zoom
- Perspective Mode
- Parametric Models
- F8 - Tube: End Labels
- F9 - Tube: Point Labels
- F10 - Show True View Orbit Control
- Show True View Transform Control
- Points: SCANNED
- Points: CALCULATED
- Only Recent Measured
- Model: CUT PLANE
- Model: MEASURED
- Model: ALIGNED
- Model: MASTER
- Model: ENVELOPE
- Tube: Intersection Points
- Tube: End & Tangent
- Other Actions



C:\Users\Public\Documents\Tube-LASER Demo 5.vtp

View Mode: SELECT, Projection: PARALLEL, Wire Frame: OFF, Auto Zoom: OFF

Click the Export button.

Measured Tube Data

Points Export Radius Translate Reverse Bend

Export to NUMALLIANCE CSV File

Export to Measured Tube to the target selected above

Measured Centerline XYZ Data: Lock Grids

Pnt	X	Y	Z	Radius	DofBend
1	-5.085	1.415	23.924		
2	-4.141	-1.161	23.035	1.500	2.00
3	-0.502	-0.318	23.416	1.500	2.00
4	1.596	-0.958	21.341	1.500	2.00
5	1.238	-0.493	18.363	1.500	2.00
6	3.125	-1.036	16.156	1.500	2.00
7	5.705	-0.384	16.359		

Inc 360CW

Incremental LRA

	L	R	A	Radius
1	1.507	0.0	85.1	1.500
2	1.577	-134.6	56.2	1.500
3	1.421	44.5	56.0	1.500
4	1.523	-179.9	51.0	1.500
5	1.392	-44.3	58.9	1.500
LL	1.821			

Rev Master

Part Setup

Master Tube

Measure Setup

Measure Process

Measured Tube

Inspection Data

Bender Setup

Reports

Data Handling

Active:1

DCP Auto = 0.375

NUMALLIANCE CSV Export

NUMALLIANCE

Foundational data is based on: Measured Non-Aligned

Close

Positive Rotations Move Clockwise for this Bender

Include Springback Compensation in Output Data

Display File Data in Editor After Export

Set the Filename then EXPORT to NUMALLIANCE CSV File

Location: 24.891, 41.157, 0.000

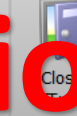
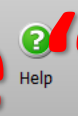
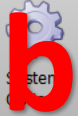
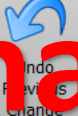
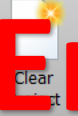
Viewport

- F2 - Refresh Parametric Graphics
- F3 - Zoom All
- F4 - VPort: Select
- F5 - VPort: Orbit
- F6 - VPort: Pan
- F7 - VPort: Zoom Win
- Set Orientation
- Ctrl-F2 - Auto Zoom
- Perspective Mode

Parametric Models

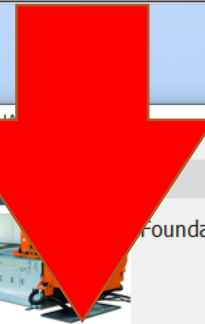
- F8 - Tube: End Labels
- F9 - Tube: Point Labels
- F10 - Show True View Orbit Control
- Show True View Transform Control
- Points: SCANNED
- Points: CALCULATED
- Only Recent Measured
- Model: CUT PLANE
- Model: MEASURED
- Model: ALIGNED
- Model: MASTER
- Model: ENVELOPE
- Tube: Intersection Points
- Tube: End & Tangent

Other Actions



Enable the "Positive Rotations Clockwise" option.

Clockwise" option.



NUMALLIANCE CSV Export

Foundational data is based on: Measured Non-Aligned

Positive Rotations Move Clockwise for this Bender

Include Springback Compensation in Output Data

Display File Data in Editor After Export

Set the Filename then EXPORT to NUMALLIANCE CSV File

Close

Displayed in UI: VTube-LASER Demo 5

Measured Tube Data

Export to NUMALLIANCE CSV File

Export to Measured Tube to the target selected above

Measured Centerline XYZ Data: Lock Grids

Pnt	X	Y	Z	Radius	DofBend
1	-5.085	1.415	23.924		
2	-4.141	-1.161	23.035	1.500	2.00
3	-0.502	-0.318	23.416	1.500	2.00
4	1.596	-0.958	21.341	1.500	2.00
5	1.238	-0.493	18.363	1.500	2.00
6	3.125	-1.036	16.156	1.500	2.00
7	5.705	-0.384	16.359		

Inc 360CW

Incremental LRA Reverse Calc

	L	R	A	Radius
1	1.507	0.0	85.1	1.500
2	1.577	-134.6	56.2	1.500
3	1.421	44.5	56.0	1.500
4	1.523	-179.9	51.0	1.500
5	1.392	-44.3	58.9	1.500
LL	1.821			

Rev Master

Part Setup

Master Tube

Measure Setup

Measure Process

Measured Tube

Inspection Data

Bender Setup

Reports

Data Handling

Active:1

DCP Auto = 0.375

View Mode: SELECT, Projection: PARALLEL, Wire Frame: OFF, Auto Zoom: OFF

Measuring Device: ROMAN ARM

Viewport

F2 - Refresh Parametric Graphics

F3 - Zoom All

F4 - VPort: Select

F5 - VPort: Orbit

F6 - VPort: Pan

F7 - VPort: Zoom Win

Set Orientation

Ctrl-F2 - Auto Zoom

Perspective Mode

Parametric Models

F8 - Tube: End Labels

F9 - Tube: Point Labels

F10 - Show True View Orbit Control

Show True View Transform Control

Points: SCANNED

Points: CALCULATED

Only Recent Measured

Model: CUT PLANE

Model: MEASURED

Model: ALIGNED

Model: MASTER

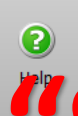
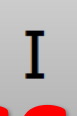
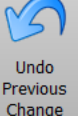
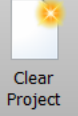
Model: ENVELOPE

Tube: Intersection Points

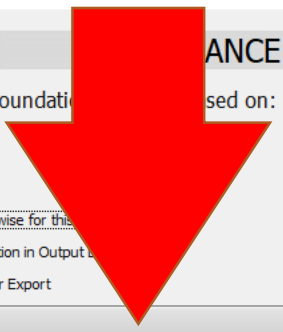
Tube: End & Tangent

Other Actions

Location: 24.891, 41.157, 0.000



Press "Set the Filename" button.



NUMALLIANCE CSV Export

Foundation based on: Measured Non-Aligned

Positive Rotations Move Clockwise for this

Include Springback Compensation in Output

Display File Data in Editor After Export

Close

Set the Filename then EXPORT to NUMALLIANCE CSV File

Measured Tube Data

Export to NUMALLIANCE CSV File

Export to Measured Tube to the target selected above

Measured Centerline XYZ Data:

Pnt	X	Y	Z	Radius	DofBend
1	-5.085	1.415	23.924		
2	-4.141	-1.161	23.035	1.500	2.00
3	-0.502	-0.318	23.416	1.500	2.00
4	1.596	-0.958	21.341	1.500	2.00
5	1.238	-0.493	18.363	1.500	2.00
6	3.125	-1.036	16.156	1.500	2.00
7	5.705	-0.384	16.359		

Incremental LRA

L	R	A	Radius	
1	1.507	0.0	85.1	1.500
2	1.577	-134.6	56.2	1.500
3	1.421	44.5	56.0	1.500
4	1.523	-179.9	51.0	1.500
5	1.392	-44.3	58.9	1.500
LL	1.821			

Measuring Device: ROMER Arm

Part Setup

Master Tube

Measure Setup

Measure Process

Measured Tube

Inspection Data

Bender Setup

Reports

Data Handling

Active:1

Location: 24.891, 41.157, 0.000

DCP Auto = 0.375

Viewport

- F2 - Refresh Parametric Graphics
- F3 - Zoom All
- F4 - VPort: Select
- F5 - VPort: Orbit
- F6 - VPort: Pan
- F7 - VPort: Zoom Win
- Set Orientation
- Ctrl-F2 - Auto Zoom
- Perspective Mode

Parametric Models

- F8 - Tube: End Labels
- F9 - Tube: Point Labels
- F10 - Show True View Orbit Control
- Show True View Transform Control
- Points: SCANNED
- Points: CALCULATED
- Only Recent Measured
- Model: CUT PLANE
- Model: MEASURED
- Model: ALIGNED
- Model: MASTER
- Model: ENVELOPE
- Tube: Intersection Points
- Tube: End & Tangent

Other Actions

File Help

Displayed in UI: VTube-LASER Demo 5

Measured Tube

Points Export Radius Averaging Trajectory

Export to NUMALLIANCE CSV FILE

Export to Measured Tube to

Measured Centerline XYZ Data:

Pnt	X	Y	Z
1	-5.085	1.415	23.924
2	-4.141	-1.161	23.035
3	-0.502	-0.318	23.416
4	1.596	-0.958	21.341
5	1.238	-0.493	18.363
6	3.125	-1.036	16.156
7	5.705	-0.384	16.359

Inc 360CW

Incremental LRA

	L	R	A
1	1.507	0.0	85.1
2	1.577	-134.6	56.2
3	1.421	44.5	56.0
4	1.523	-179.9	51.0
5	1.392	-44.3	58.9
LL	1.821		

VTube Path Manager

Action: EXPORTING NUMALLIANCE CSV FILE

Double click on the path to use, or click and press the "Use path" button, or use one of the other options.

Search For: Search First Find Next

C:\Users\Public\Documents\VTube\Demo Files\

C:\Users\Public\Documents\VTube\FABTECH 2018\

C:\Users\MichaelCone\Dropbox (Advanced Tubular)\Customers\Terry Wayne Company\20190531\

C:\Users\MichaelCone\Dropbox (Advanced Tubular)\Customers

C:\Users\MichaelCone\Dropbox (Advanced Tubular)\Customers\Volvo\HEXAGON Sent Files - Joshua Von Der Heyde\

C:\Users\MichaelCone\Dropbox (Advanced Tubular)\Customers\Alert Tubing Fabricators, Inc\20190114 Tech Support\

C:\Users\MichaelCone\Dropbox (Advanced Tubular)\Customers\Technical\Winton\Winton Bender Models\

C:\Users\MichaelCone\Dropbox (Advanced Tubular)\Customers\MEC (was Center Mfg)\20190117 Tech Support DS file\

C:\Users\MichaelCone\Dropbox (Advanced Tubular)\Customers\Hose and Rubber\

C:\Users\MichaelCone\Dropbox (Advanced Tubular)\Customers\Hickory Spring Manufacturing - HSM Solutions\20190117 Tech support STEP files\

C:\Users\MichaelCone\Dropbox (Advanced Tubular)\Customers\Intertrade Logistics\

C:\Users\MichaelCone\Desktop\

C:\Users\MichaelCone\Dropbox (Advanced Tubular)\Customers\United Muffler (FARO End User)\20190206 Paul Demelo - Tech Support Importing STEP files\

G:\

C:\Users\Public\Documents\VTube\Demo Files\HOUSTEX 2019\

C:\Users\MichaelCone\Dropbox (Advanced Tubular)\Customers\ERIKS\20190302 Wim Sisterman Question About File with 54 pipes\

C:\Users\MichaelCone\Dropbox (Advanced Tubular)\Customers\Stauff Australia\20190306 Tech Support - Mel Hanly\

C:\Users\MichaelCone\Desktop\Joe\

C:\Users\MichaelCone\Dropbox (Advanced Tubular)\Customers\Gardistrib (New D 20190321 Tech Support\

C:\Users\MichaelCone\Dropbox (Advanced Tubular)\Customers\Gotic\

C:\Users\MichaelCone\Dropbox (Advanced Tubular)\Customers\Marlin Products\20190331 Tech Support\

C:\Users\MichaelCone\Dropbox (Advanced Tubular)\Customers\Summit Steel Works, Corp - through Paul at PRindSales\

C:\Users\MichaelCone\Dropbox (Advanced Tubular)\Customers\Elite Tube & Fab\20190326 Tech support\

C:\Users\MichaelCone\Dropbox (Advanced Tubular)\Customers\S3 Power Sports\

C:\Users\MichaelCone\Dropbox (Advanced Tubular)\Customers\Parama - Confidential\

C:\Users\MichaelCone\Dropbox (Advanced Tubular)\Customers\Eibar\

C:\Users\MichaelCone\Desktop\20190330\

C:\Users\MichaelCone\Dropbox (Advanced Tubular)\2 - Technical\A\

C:\Users\MichaelCone\Dropbox (Advanced Tubular)\Customers\Mercury Products\20190406 Lijun Requested Video\

C:\Users\MichaelCone\Dropbox (Advanced Tubular)\Customers\Miele\20190408 Thomas Enzensberger Tech support Split Bend\

C:\Users\MichaelCone\Dropbox (Advanced Tubular)\Customers\SMI - Sistemi Meccanici Industriali srl (Italy)\20190418 Customer Demo\

C:\Users\MichaelCone\Dropbox (Advanced Tubular)\Customers\Hycom, Inc\20190418 Tech Support\

C:\Users\MichaelCone\Dropbox (Advanced Tubular)\Customers\Mercury Products\20190418 Lijun Support with Model\

Double-click on a save path.

Or click on "Continue with No Selection".



Use the path selected

Continue with No Selection

EDIT the Current Selected Persistent Path...

ADD a New Persistent Path...

Delete Selected Path

Move Up

Move Down

Clear paths that no longer exist

Clear all paths in the list

Close

Offer to Add New Paths Detected

Viewport

F2 - Refresh Parametric Graphics

F3 - Zoom All

F4 - VPort: Select

F5 - VPort: Orbit

F6 - VPort: Pan

F7 - VPort: Zoom Win

Set Orientation

Ctrl-F2 - Auto Zoom

Perspective Mode

Parametric Models

F8 - Tube: End Labels

F9 - Tube: Point Labels

F10 - Show True View Orbit Control

Show True View Transform Control

Points: SCANNED

Points: CALCULATED

Only Recent Measured

Model: CUT PLANE

Model: MEASURED

Model: ALIGNED

Model: MASTER

Model: ENVELOPE

Tube: Intersection Points

Tube: End & Tangent

Other Actions



Load Project
 Save Project
 Save As... Project
 Clear Project
 Undo Previous Change
 System Options
 Tube Data Storage
 Assembly
 I
 Help
 About VTube

Switch Screens
 Close VTube
 Switch to STEP MODE
Import STEP files

Check the File name and path, then press Save.

Save As

C:\Users\Public\Documents\VTube\Demo Files\VTube-LASER Demo 5.vtp

File Help

Displayed in UI: VTube-LASER Demo 5

Export to NUMALLIANCE CSV File

Export to Measured Tube to the target selected above

Measured Centerline XYZ Data: Lock Grids

Pnt	X	Y	Z	Radius	DofBend
1	-5.085	1.415	23.924		
2	-4.141	-1.161	23.035	1.500	2.00
3	-0.502	-0.318	23.416	1.500	2.00
4	1.596	-0.958	21.341	1.500	2.00
5	1.238	-0.493	18.363	1.500	2.00
6	3.125	-1.036	16.156	1.500	2.00
7	5.705	-0.384	16.359		

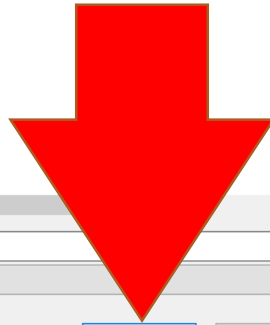
Inc 360CW

Incremental LRA

	L	R	A	Radius
1	1.507	0.0	85.1	1.500
2	1.577	-134.6	56.2	1.500
3	1.421	44.5	56.0	1.500
4	1.523	-179.9	51.0	1.500
5	1.392	-44.3	58.9	1.500
LL	1.821			

File name: VTube-LASER Demo 5.CSV

Save as type: NUMALLIANCE CSV (*.CSV)



Viewport

F2 - Refresh Parametric Graphics

F3 - Zoom All

F4 - VPort: Select

F5 - VPort: Orbit

F6 - VPort: Pan

F7 - VPort: Zoom Win

Set Orientation

Ctrl-F2 - Auto Zoom

Perspective Mode

Parametric Models

F8 - Tube: End Labels

F9 - Tube: Point Labels

F10 - Show True View Orbit Control

Show True View Transform Control

Points: SCANNED

Points: CALCULATED

Only Recent Measured

Model: CUT PLANE

Model: MEASURED

Model: ALIGNED

Model: MASTER

Model: ENVELOPE

Tube: Intersection Points

Tube: End & Tangent

Other Actions

At the NUMALLIANCE control, import the file and allow it to correct the bender.

